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ABSTRACT

This paper contains a report concerning trends of enrollment and financial support in graduate science education submitted to the National Board on Graduate Education. For the study, three surveys were utilized: (1) National Science Foundation's (NSF) annual surveys of graduate student support, fiscal years 1968-73; (2) National Research Council Doctorate Records File, fiscal years 1968-73; and (3) American Council on Education, "A Rating of Graduate Programs" (prepared by Kenneth Roose and C. J. Anderson). In this paper, reference is made primarily from the NSF surveys, for they enable analyses by academic department and offer an eight-year longitudinal basis. Trends in graduate enrollments offering statistics on those departments rated as highest, next highest, and so forth by Roose-Anderson ratings are reported. Other topics include sources of student support and distributions of types of financial backing. Appendices present data taken from NSF Graduate Student Surveys. (CP)

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Use of the NSF Graduate Student Support Surveys for Policy Analysis

by

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From the standpoint of research on the behavior and performance of graduate departments, both individually and considered as a system, the NSF Graduate Student Support Survey data are uniquely valuable. Because the surveys are filled out at the departmental level, they are an unambiguous source of detailed information on graduate enrollments and type and source of student support by department. Furthermore, the surveys have been in existence for eight years, and thus provide a longitudinal series of data, thereby allowing comparisons over time in the same set of departments. In this paper, I will draw on a recent study* that made extensive use of the surveys to address a number of important policy questions about graduate education. Following discussion of the findings of that study, I will note some recent improvements made in the survey, together with some comments on the deficiencies of the surveys for other policy questions.

The idea for the study grew out of a recognition early in the life of the National Board on Graduate Education that far too little was known about the adjustments occurring within graduate schools in response to the major economic changes of recent years in the graduate education environment. In particular, little was known about how graduate education, when viewed as a system, was developing, although it was known that several of the leading universities were reducing graduate enrollments at the same time that doctoral programs were being established in the newer universities, and that recent federal policy of sharply curtailed support for graduate students was thought by many to be related to these developments. The magnitude of these trends was not known, however, nor were the causal factors well understood.

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*David W. Breneman, Graduate School Adjustments to the "New Depression" in Higher Education, A Technical Report to the National Board on Graduate Education. (Washington, D. C.: National Academy of Sciences, 1975.)

In order to address these and related questions, three sources of data were used:

1. National Science Foundation annual surveys of graduate student support, FY 1968-FY 1973.

2. National Research Council Doctorate Records File, FY 1968-FY 1973. This file contains a record of all doctorate recipients from U.S. universities since 1920 and extensive survey data since 1958; it is prepared annually from a survey of earned doctorates administered by the graduate schools of each Ph.D.-granting university.

3. American Council on Education, A Rating of Graduate Programs (prepared by Kenneth Roose and C. J. Andersen, and referred to hereafter as the Roose-Andersen report). This rating survey covered 130 universities and a numerical score was given to each department that was rated on the quality of its graduate faculty within those universities. The original data tape from this survey was obtained and merged with the tapes of the other two principal data sources.

For purposes of this presentation, I will limit the discussion to information gleaned from the analysis of the NSF Student Support surveys. In order to address the set of questions regarding trends in graduate enrollments and student support by discipline and by quality of program, a subset of departments that had completed the NSF surveys every year over the 6-year period, FY 1963-FY 1973, was selected. This yielded a set of 1201 doctorate-granting departments covering 14 disciplines* for which comparable data were available over this period. Tables were then produced which allow us to examine various trends in this matched cohort of departments.

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*The 14 disciplines are: anthropology, chemical engineering, chemistry, civil engineering, economics, electrical engineering, geography, geology, mathematics, mechanical engineering, physics, political science, psychology, and sociology.

Two factors forced our limitation to 1201 departments and 14 disciplines. First, the NSF surveys are restricted to fields of NSF concern, including the physical and biological sciences, engineering, and most social sciences; no comparable survey exists for the humanities disciplines. Secondly, within each discipline we further categorized departments by the ACE Roose-Andersen quality rating, and included a discipline only if we had data over the 6 years for a substantial proportion of the departments rated in each category. We were unable to include any biological science in the study because a very high proportion of those departments had failed to turn in one or more of the annual survey forms. The 14 disciplines that are included in the aggregate statistical tables provide good representation of the physical sciences, social sciences, and engineering fields,* and we know of no reason to assume that patterns in the biological sciences or in the humanities would differ significantly from the covered fields. That possibility exists, however, and must be left as an open issue which cannot be adequately addressed with existing data.

Trends in Graduate Enrollments

Tables 1-6 present information on first year and total full-time graduate enrollments in six disciplines over the period FY 1968-FY 1973 with departments classified by Roose-Andersen ratings.** The data from the NSF surveys do not include all graduate departments in each rated category, although coverage is

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*In FY 1971, the 1201 departments included on the NSF tape produced 92 percent of the 11,267 Ph.D. degrees awarded in these 14 fields. In that year, 32,113 Ph.D. degrees were awarded in all disciplines, so the 14 fields included in this study represent approximately 35 percent of the universe of doctoral level education.

**The highest possible score was 5.0; the lowest possible, 0.0 In the following tables, therefore, departments rated 4.0-5.0 are the highest rated, those scoring 3.0-3.9, the next highest rated, and so forth, to the lowest rated group scoring 0.0-1.4. Doctorate-granting departments not included in the survey are the non-rated departments.

very high.* These data allow us to trace enrollment trends within the same set of departments over a period of years marked by substantial cutbacks in federal support for graduate students and by a deteriorating labor market for new Ph.D.'s. The most striking observation is the relative stability of the enrollment distribution among Roose-Andersen categories in these disciplines over the 6-year period. In five of the six fields (psychology being the exception) total full-time graduate enrollment declined between FY 1968 and FY 1973, but large shifts in the percentage distribution of enrollments among the departments generally did not occur.

Since the enrollment trends in the 14 disciplines covered in this report were roughly similar, the data for the 14 fields were aggregated by Roose-Andersen categories into one consolidated table, i.e., the figures for the 4.0-5.0 rated departments in all 14 fields were added together, as were the figures for the 3.0-3.9 departments, and so forth. This allowed us to examine trends in high-rated, low-rated, and non-rated departments in a single table, rather than in 14 separate tables, one for each discipline. Table 7 presents enrollment data for the 1201 departments, by quality grouping. Although a higher proportion of graduate students were enrolled in the non-rated departments at the end of the six-year period, it is far from clear that this trend will continue through the 1970's; in fact, the proportion enrolled in the top two categories (3.0-5.0), after declining from 45.0 to 41.9 percent between fiscal 1968 and 1972, increased slightly to 42.4 percent in fiscal 1973. The data for two or three more years will be necessary before this transition period can be definitively interpreted.

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*For the Roose-Andersen rated departments, the data include 98.4 percent of the chemistry departments, 76.9 percent of the economics departments, 96.5 percent of the physics departments, 89.7 percent of the electrical engineering departments, 91.2 percent of the mathematics departments, and 80.9 percent of the psychology departments. The coverage of non-rated departments is not as complete, but is over 75 percent in most disciplines.

Tables 8-13 display trends in the 14 fields in type and source of graduate student support. Table 8 reports the distribution of fellowships and traineeships from all sources--federal, state, private, and university's own funds. The total decline from 25,173 to 15,759 is largely accounted for by the reduction in federal support,* indicating stability in the number of such awards from other sources. As the table shows, departments in the two highest rated categories increased their proportion of the declining total from 51 to 55 percent.

Trends in the numbers of research assistantships are reported in Table 9. Total numbers are down from 16,952 to 14,882, a drop of 12 percent over the six years. This reflects, in part, the reduction in federal expenditures for R&D in universities that occurred in FY 1969 and continued (in constant dollar terms) for three subsequent years. Each category of departments shows a drop except the non-rated group, which continued increasing until FY 1971 and had roughly 300 more assistantships (one per department on average) in FY 1973 than in FY 1968. The 293 departments in the top two groups still had over 50 percent of the research assistantships, however, in the last year covered by these data.

Trends in the distribution of teaching assistantships are presented in Table 10. Of the three principal types of student support, teaching assistantships showed the only growth, increasing by 8 percent from 20,444 to 22,190. The non-rated departments, with an increase of approximately 1,000 assistantships (an average of 4 per department), were the major gainers, reflecting the continued growth in undergraduate enrollments (and hence the need for teaching assistants) in many of the newer universities. As the enrollment in these institutions stabilizes, the growth in teaching assistant (TA) positions will

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*See David W. Breneman, Graduate School Adjustments . . ., op. cit., p. 31.

slow or cease, and the distribution of these positions among universities should become relatively stable, shifting only as undergraduate enrollments shift.

The NSF graduate students support survey also classifies support by source, including federal, institutional and state government funds, and self, loans, and family. Tables 11, 12, and 13 report the number of students supported from each of these sources by quality group over the 6-year period for the 1201 departments in our matched cohort. In total, federally supported students declined by 35 percent, from 31,865 to 20,781; those receiving support from the institutions or from state governments increased by 8 percent, from 28,486 to 30,783; and self-support (including loans and family sources) increased by 46 percent, from 11,645 and 16,978.

All quality groups shared in the decline of federal support for students in roughly proportional terms. The highest rated and the non-rated departments each increased their proportion slightly, while the other groups were either stable or had modestly declining percentages. The relative concentration of federal funds in the leading departments stands out, for the 3.0-5.0-rated departments received over 50 percent of the federal sources of student support in each of the six years.

By comparison, institutional and state sources of student support are not as concentrated in the leading departments, reflecting in large measure the broader distribution of teaching assistantships that follow undergraduate enrollment trends. As Table 12 indicates, the percentage distribution of these funds by quality group has not changed much over the six years, although the largest absolute gains were made by the non-rated departments, with the increase in teaching assistantships that we noted earlier accounting for most of this gain. Tables 11 and 12 highlight

the growing importance of state and institutional funds for student support relative to federal sources, suggesting that greater attention should be focused in the future on the distributional effects of state policies toward support of graduate education.

Trends in self-support (Table 13) involve several interesting relationships among quality categories that are too detailed to discuss here. The analysis is presented in the published study, pp. 37-38.

As these tables suggest, the NSF surveys can be very useful in monitoring trends within the graduate schools, and hence can contribute to the formation of sound public policy toward graduate education. The newly revised survey form has been simplified and improved in many ways, particularly in clarifying the accounting for students supported under the G.I. Bill. Its policy usefulness would be further increased if coverage were extended to the humanities (with financial support provided by the National Endowment for the Humanities), and if racial and ethnic information were included.

A serious limitation of the survey for certain purposes is the absence of information on the dollar amount of the various forms of support. Anecdotal evidence indicates that average stipend levels have been undergoing substantial changes in recent years, but the survey is not constructed to reveal this. As more use is made of the survey results, it may be possible to expand its usefulness.

APPENDIX

TABLE 1 Full-time Graduate Enrollment in 168 Doctorate-Granting Chemistry Departments, by Quality Category and Year

Roose–Andersen Rating	Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
First-year full-time						
4.0–5.0	607	577	613	484	434	423
	16.3	16.8	17.7	15.2	15.0	15.9
3.0–3.9	1,014	961	922	829	752	688
	27.3	28.0	26.7	26.0	26.0	25.8
2.5–2.9	532	495	542	473	453	392
	14.3	14.4	15.7	14.8	15.7	14.7
2.0–2.4	486	389	398	390	382	345
	13.1	11.3	11.5	12.2	13.2	12.9
1.5–1.9	423	356	400	395	311	272
	11.4	10.4	11.6	12.4	10.8	10.2
0.0–1.4	162	124	118	144	121	125
	4.4	3.6	3.4	4.5	4.2	4.7
Not rated	495	531	465	476	438	422
	13.3	15.5	13.4	14.9	15.2	15.8
TOTAL	3,719	3,433	3,458	3,191	2,891	2,667
Total full-time						
4.0–5.0	2,359	2,368	2,308	2,151	2,012	1,903
	17.4	17.3	17.5	17.1	16.8	17.1
3.0–3.9	4,005	3,955	3,749	3,461	3,246	3,101
	29.6	28.8	28.4	27.5	27.1	27.8
2.5–2.9	2,034	2,086	1,982	1,937	1,840	1,667
	15.0	15.2	15.0	15.4	15.3	14.9
2.0–2.4	1,699	1,677	1,594	1,539	1,513	1,370
	12.5	12.2	12.1	12.2	12.6	12.3
1.5–1.9	1,498	1,522	1,460	1,459	1,366	1,185
	11.1	11.1	11.1	11.6	11.4	10.6
0.0–1.4	516	510	486	478	470	456
	3.8	3.7	3.7	3.8	3.9	4.1
Not rated	1,435	1,602	1,615	1,553	1,551	1,467
	10.6	11.7	12.2	12.3	12.9	13.2
TOTAL	13,546	13,720	13,194	12,578	11,998	11,151

* *Number of students* in the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.
SOURCES: Data from NSF Graduate Student Support Surveys.

TABLE 2 Full-time Graduate Enrollment in 80 Doctorate-Granting Economics Departments, by Quality Category and Year

Roose–Andersen Rating	Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
First-year full-time						
4.0–5.0	184	183	207	169	174	164
	9.4	9.5	10.7	9.3	10.2	10.3
3.0–3.9	479	355	401	396	338	333
	24.5	18.4	20.8	21.7	19.7	20.9
2.5–2.9	303	327	296	300	275	259
	15.5	17.0	15.3	16.5	16.1	16.3
2.0–2.4	308	302	321	313	246	238
	15.7	15.7	16.6	17.2	14.4	15.0
1.5–1.9	257	222	218	208	262	251
	13.1	11.5	11.3	11.4	15.3	15.8
0.0–1.4	238	267	235	210	235	177
	13.2	13.8	12.2	11.5	13.7	11.1
Not rated	167	272	252	227	183	168
	8.5	14.1	13.1	12.5	10.7	10.6
TOTAL	1,936	1,928	1,930	1,823	1,713	1,590
Total full-time						
4.0–5.0	392	394	617	392	581	605
	10.9	10.8	11.8	10.8	11.2	12.1
3.0–3.9	1,433	1,305	1,267	1,284	1,173	1,142
	26.4	23.7	22.7	23.5	22.6	22.9
2.5–2.9	944	894	923	860	870	868
	17.4	16.3	16.5	15.8	16.8	17.4
2.0–2.4	890	904	891	906	793	720
	16.4	16.4	15.9	16.6	15.3	14.5
1.5–1.9	671	598	633	592	704	673
	11.?	10.9	11.3	10.8	13.6	13.5
0.0–1.4	648	682	723	621	660	535
	11.9	12.4	12.9	11.4	12.7	10.7
Not rated	303	523	536	604	408	438
	5.6	9.5	9.6	11.1	7.9	8.8
TOTAL	5,431	5,500	5,590	5,459	5,189	4,981

* *Number of students* in the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.
SOURCE: Data from our Graduate Student Support Surveys.

TABLE 3 Full-time Graduate Enrollment in 95 Doctorate-Granting Electrical Engineering Departments, by Quality Category and Year

Roose–Andersen Rating	Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
First-year full-time						
4.0–5.0	704	624	594	655	680	709
	21.7	22.3	21.0	22.9	24.9	26.7
3.0–3.9	1,079	879	959	832	699	775
	33.3	31.4	33.9	29.1	25.6	29.1
2.5–2.9	394	389	366	388	349	341
	12.1	13.9	13.0	13.6	12.8	12.8
2.0–2.4	298	267	269	272	295	168
	9.2	9.5	9.5	9.5	10.8	6.3
1.5–1.9	299	254	240	246	230	234
	9.2	9.1	8.5	8.6	8.4	8.8
0.0–1.4	42	46	66	60	82	34
	1.3	1.6	2.3	2.1	3.0	1.3
Not rated	427	339	331	404	391	399
	13.2	12.1	11.7	14.1	14.3	15.0
TOTAL	3,243	2,798	2,825	2,857	2,726	2,660
Total full-time						
4.0–5.0	1,736	1,716	1,571	1,671	1,754	1,703
	23.4	23.6	21.8	22.9	24.7	25.3
3.0–3.9	2,763	2,626	2,618	2,434	2,183	2,125
	37.2	36.1	36.4	33.4	30.7	31.6
2.5–2.9	903	940	905	895	844	778
	12.2	12.9	12.6	12.3	11.9	11.6
2.0–2.4	617	617	636	711	751	588
	8.3	8.5	8.8	9.8	10.6	8.7
1.5–1.9	565	524	530	519	484	520
	7.6	7.2	7.4	7.1	6.8	7.7
0.0–1.4	76	91	112	111	142	114
	1.0	1.3	1.6	1.5	2.0	1.7
Not rated	760	751	819	950	946	897
	10.2	10.3	11.4	13.0	13.3	13.3
TOTAL	7,420	7,265	7,191	7,291	7,104	6,725

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.

SOURCE: Data from NSF Graduate Student Support Surveys.

TABLE 4 Full-time Graduate Enrollment in 120 Doctorate-Granting Mathematics Departments, by Quality Category and Year

Roose–Andersen Rating	Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
First-year full-time						
4.0–5.0	311	299	337	360	282	292
	10.0	10.2	11.3	12.5	11.4	12.8
3.0–3.9	687	636	676	594	482	426
	22.1	21.8	22.7	20.6	19.4	18.6
2.5–2.9	573	547	622	535	502	411
	18.4	18.7	20.8	18.6	20.2	18.0
2.0–2.4	559	495	496	506	477	359
	18.0	17.0	16.6	17.6	19.2	15.7
1.5–1.9	252	221	247	257	189	230
	8.1	7.6	8.3	8.9	7.6	10.0
0.0–1.4	337	280	233	295	217	219
	10.8	9.6	7.8	10.2	8.7	9.6
Not rated	387	440	373	336	334	352
	12.5	15.1	12.5	11.7	13.5	15.4
TOTAL	3,106	2,918	2,984	2,883	2,483	2,289
Total full-time						
4.0–5.0	1,219	1,161	1,096	1,131	1,043	1,070
	13.6	13.0	12.9	13.4	13.4	14.7
3.0–3.9	1,886	1,976	1,845	1,732	1,579	1,507
	21.1	22.1	21.7	20.5	20.3	20.7
2.5–2.9	1,555	1,538	1,596	1,487	1,445	1,283
	17.4	17.2	18.8	17.6	18.6	17.6
2.0–2.4	1,674	1,570	1,546	1,502	1,371	1,206
	18.7	17.6	18.2	17.8	17.6	16.6
1.5–1.9	764	737	720	745	626	572
	8.5	8.3	8.5	8.8	8.1	7.9
0.0–1.4	789	772	693	769	634	595
	8.8	8.6	8.2	9.1	8.2	8.2
Not rated	1,071	1,178	997	1,071	1,072	1,051
	12.0	13.2	11.7	12.7	13.8	14.4
TOTAL	8,958	8,932	8,493	8,437	7,770	7,284

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.

SOURCE: Data from NSF, Graduate Student Support Surveys.

TABLE 5 Full-time Graduate Enrollment in 146 Doctorate-Granting Physics Departments, by Quality Category and Year

Roose–Andersen Rating	Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
First-year full-time						
4.0–5.0	501	417	470	315	315	331
	18.3	16.0	18.2	14.6	15.9	18.3
3.0–3.9	692	735	634	513	426	418
	25.3	28.2	24.6	23.8	21.5	23.1
2.5–2.9	476	429	479	358	327	311
	17.4	16.4	18.6	16.6	16.5	17.2
2.0–2.4	294	264	282	247	245	199
	10.7	10.1	10.9	11.5	12.4	11.0
1.5–1.9	209	201	197	204	193	122
	7.6	7.7	7.6	9.5	9.7	6.7
0.0–1.4	170	141	143	137	112	126
	6.2	5.4	5.6	6.4	5.7	7.0
Not rated	394	422	371	380	363	301
	14.4	16.2	14.4	17.6	18.3	16.6
TOTAL	2,736	2,609	2,576	2,154	1,981	1,808
Total full-time						
4.0–5.0	2,106	2,059	1,998	1,855	1,691	1,593
	19.1	18.4	18.7	18.5	18.4	19.1
3.0–3.9	2,896	2,906	2,727	2,462	2,294	2,028
	26.2	26.0	25.5	24.6	24.9	24.3
2.5–2.9	2,083	2,100	1,974	1,747	1,551	1,448
	18.9	18.8	18.5	17.5	16.8	17.4
2.0–2.4	1,191	1,207	1,191	1,058	942	813
	10.8	10.8	11.2	10.6	10.2	9.7
1.5–1.9	973	947	877	877	767	640
	8.8	8.5	8.2	8.8	8.3	7.7
0.0–1.4	564	576	552	580	544	529
	5.1	5.2	5.2	5.8	5.9	6.3
Not rated	1,230	1,368	1,362	1,432	1,421	1,289
	11.1	12.3	12.8	14.3	15.4	15.5
TOTAL	11,043	11,163	10,681	10,011	9,210	8,340

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.

SOURCE: Data from NSF Graduate Student Support Surveys.

TABLE 6 Full-time Graduate Enrollments in 110 Doctorate-Granting Psychology Departments, by Quality Category and Year

Roose–Andersen Rating	Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
First-year full-time						
4.0–5.0	219	188	239	195	199	187
	8.0	6.7	8.1	6.9	7.0	6.6
3.0–3.9	750	709	729	624	639	654
	27.3	25.4	24.6	22.2	22.4	23.1
2.5–2.9	339	350	364	378	356	361
	12.3	12.6	12.3	13.4	12.5	12.8
2.0–2.4	593	614	616	628	664	580
	21.6	22.0	20.8	22.3	23.2	20.5
1.5–1.9	407	355	460	411	445	385
	14.8	12.7	15.5	14.6	15.6	13.6
0.0–1.4	142	190	193	204	213	195
	5.2	6.8	6.5	7.2	7.5	6.9
Not rated	295	380	364	375	341	467
	10.7	13.6	12.3	13.3	11.9	16.5
TOTAL	2,745	2,786	2,965	2,815	2,857	2,829
Total full-time						
4.0–5.0	938	887	884	812	819	781
	11.0	9.6	9.0	8.2	7.9	7.4
3.0–3.9	2,143	2,297	2,480	2,429	2,487	2,553
	25.2	24.8	25.3	24.6	24.0	24.1
2.5–2.9	1,129	1,178	1,325	1,412	1,490	1,425
	13.3	12.7	13.5	14.3	14.4	13.4
2.0–2.4	1,745	1,934	2,052	1,941	2,146	2,194
	20.5	20.9	20.9	19.6	20.7	20.7
1.5–1.9	1,181	1,219	1,341	1,485	1,597	1,573
	13.9	13.2	13.7	15.0	15.4	14.8
0.0–1.4	425	560	556	540	593	585
	5.0	6.0	5.7	5.5	5.7	5.5
Not rated	931	1,189	1,157	1,271	1,212	1,484
	11.0	12.8	11.8	12.9	11.7	14.0
TOTAL	8,492	9,264	9,795	9,890	10,344	10,595

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.

SOURCE: Data from NSF Graduate Student Support Surveys.

TABLE 7 Full-time Graduate Enrollment in 1201 Doctorate-Granting Departments, by Quality Category and Year (14 disciplines)

Roose–Andersen Rating	Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
First-year full-time						
4.0–5.0	4,316	4,037	4,311	3,899	3,828	3,916
	16.2	**16.0**	**16.5**	**15.6**	**16.0**	**17.4**
3.0–3.9	6,817	6,183	6,340	5,887	5,478	5,176
	25.5	**24.6**	**24.3**	**23.6**	**22.9**	**23.0**
2.5–2.9	4,159	4,031	4,125	4,040	3,808	3,454
	15.6	**16.0**	**15.8**	**16.2**	**16.0**	**15.4**
2.0–2.4	3,952	3,819	4,035	3,908	3,783	3,405
	14.8	**15.2**	**15.5**	**15.6**	**15.8**	**15.2**
1.5–1.9	2,714	2,283	2,546	2,461	2,400	2,158
	10.2	**9.1**	**9.8**	**9.9**	**10.1**	**9.6**
0.0–1.4	1,365	1,300	1,283	1,305	1,221	1,040
	5.1	**5.2**	**4.9**	**5.2**	**5.1**	**4.6**
Not rated	3,369	3,532	3,429	3,473	3,353	3,320
	12.6	**14.0**	**13.2**	**13.9**	**14.0**	**14.8**
TOTAL	26,692	25,190	26,069	24,973	23,871	22,469
Total full-time						
4.0–5.0	14,297	14,181	13,901	13,513	13,062	13,020
	17.9	**17.4**	**17.1**	**16.9**	**16.8**	**17.5**
3.0–3.9	21,566	21,654	21,263	20,361	19,456	18,564
	27.1	**26.6**	**26.2**	**25.5**	**25.1**	**24.9**
2.5–2.9	12,719	12,868	12,779	12,605	12,251	11,496
	16.0	**15.8**	**15.7**	**15.8**	**15.8**	**15.4**
2.0–2.4	11,869	12,123	12,490	12,032	11,897	11,184
	14.9	**14.9**	**15.4**	**15.0**	**15.3**	**15.0**
1.5–1.9	7,560	7,359	7,514	7,669	7,568	7,146
	9.5	**9.1**	**9.2**	**9.6**	**9.7**	**9.6**
0.0–1.4	3,549	3,755	3,782	3,762	3,601	3,231
	4.5	**4.6**	**4.7**	**4.7**	**4.6**	**4.3**
Not rated	8,132	9,344	9,522	10,051	9,826	9,830
	10.2	**11.5**	**11.7**	**12.6**	**12.7**	**13.2**
TOTAL	79,692	81,284	81,251	79,993	77,661	74,471

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.

SOURCE: Data from NSF Graduate Student Support Surveys.

TABLE 8 Graduate Students Receiving Fellowships and Traineeships b yQuality Category and Year (1201 departments, 14 disciplines)

Roose–Andersen Rating	Fellowship Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
4.0–5.0	5,654	5,478	5,273	4,960	4,330	3,945
	22.5	21.9	22.7	23.2	22.6	25.0
3.0–3.9	7,151	7,211	6,873	6,445	5,916	4,758
	28.4	28.8	29.6	30.1	30.9	30.2
2.5–2.9	3,844	3,828	3,254	3,071	2,648	2,070
	15.3	15.3	14.0	14.3	13.8	13.1
2.0–2.4	3,563	3,443	3,157	2,775	2,563	2,055
	14.2	13.8	13.6	13.0	13.4	13.0
1.5–1.9	2,045	2,033	1,795	1,564	1,429	1,169
	8.1	8.1	7.7	7.3	7.5	7.4
0.0–1.4	868	840	818	771	676	509
	3.4	3.4	3.5	3.6	3.5	3.2
Not rated	2,048	2,189	2,019	1,837	1,609	1,253
	8.1	8.7	8.7	8.6	8.4	8.0
TOTAL	25,173	25,022	23,189	21,423	19,171	15,759

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.
SOURCE: Data from NSF Graduate Student Support Surveys.

TABLE 9 Graduate Students Receiving Research Assistantships, by Quality Category and Year (1201 departments, 14 disciplines)

Roose–Andersen Rating	RA Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
4.0–5.0	3,890	3,721	3,733	3,490	3,316	3,376
	22.9	22.3	22.6	21.9	22.2	22.7
3.0–3.9	5,330	5,166	4,909	4,584	4,290	4,350
	31.4	31.0	29.7	28.8	28.7	29.2
2.5–2.9	2,864	2,747	2,780	2,660	2,455	2,432
	16.9	16.5	16.8	16.7	16.4	16.3
2.0–2.4	1,915	1,964	1,909	1,753	1,650	1,696
	11.3	11.8	11.5	11.0	11.0	11.4
1.5–1.9	1,117	1,118	1,062	1,103	1,006	944
	6.6	6.7	6.4	6.9	6.7	6.3
0.0–1.4	373	379	401	380	340	335
	2.2	2.3	2.4	2.4	2.3	2.3
Not rated	1,463	1,596	1,751	1,963	1,909	1,749
	8.6	9.6	10.6	12.3	12.8	11.8
TOTAL	16,952	16,691	16,545	15,933	14,966	14,882

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.
SOURCE: Data from NSF Graduate Student Support Surveys.

TABLE 10 Graduate Students Receiving Teaching Assistantships, by Quality Category and Year (1201 departments, 14 disciplines)

Roose–Andersen Rating	TA Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
4.0–5.0	2,336	2,477	2,403	2,353	2,043	2,250
	11.4	11.7	11.2	10.5	9.3	10.1
3.0–3.9	4,715	4,828	4,956	5,055	5,020	5,027
	23.1	22.8	23.0	22.5	22.7	22.7
2.5–2.9	3,522	3,638	3,621	3,807	3,658	3,686
	17.2	17.2	16.8	16.9	16.6	16.6
2.0–2.4	3,708	3,793	3,871	4,008	3,909	3,824
	18.1	17.9	18.0	17.8	17.7	17.2
1.5–1.9	2,240	2,205	2,278	2,477	2,479	2,401
	11.0	10.4	10.6	11.0	11.2	10.8
0.0–1.4	1,264	1,273	1,266	1,400	1,416	1,360
	6.2	6.0	5.9	6.2	6.4	6.1
Not rated	2,659	2,988	3,152	3,390	3,558	3,642
	13.0	14.1	14.6	15.1	16.1	16.4
TOTAL	20,444	21,202	21,547	22,490	22,083	22,190

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.
SOURCE: Data from NSF Graduate Student Support Surveys.

TABLE 11 Graduate Students Whose Primary Source of Financial Support was the Federal Government, by Quality Category and Year (1201 departments, 14 disciplines)

Roose–Andersen Rating	Federally Supported Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
4.0–5.0	6,912	6,742	6,488	6,042	5,255	4,884
	21.7	21.7	22.6	22.7	22.3	23.5
3.0–3.9	9,432	9,131	8,362	7,694	6,899	6,077
	29.6	29.4	29.2	28.9	29.2	29.2
2.5–2.9	5,406	5,130	4,407	4,278	3,769	3,302
	17.0	16.5	15.4	16.1	16.0	15.9
2.0–2.4	4,149	3,976	3,678	3,213	2,899	2,584
	13.0	12.8	12.8	12.1	12.3	12.4
1.5–1.9	2,558	2,487	2,180	1,946	1,722	1,454
	8.0	8.0	7.6	7.3	7.3	7.0
0.0–1.4	853	882	841	764	689	519
	2.7	2.8	2.9	2.9	2.9	2.5
Not rated	2,555	2,676	2,711	2,663	2,365	1,961
	8.0	8.6	9.5	10.0	10.0	9.4
TOTAL	31,865	31,024	28,667	26,600	23,598	20,781

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.
SOURCE: Data from NSF Graduate Student Support Surveys.

TABLE 12 Graduate Students Whose Primary Source of Financial Support was University or State Funds, by Quality Category and Year (1201 departments, 14 disciplines)

Roose–Andersen Rating	State Supported Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
4.0–5.0	3,879	3,992	3,892	3,904	3,534	3,947
	13.6	13.3	12.7	12.5	11.5	12.8
3.0–3.9	7,014	7,390	7,436	7,367	7,224	7,174
	24.6	24.6	24.2	23.5	23.5	23.3
2.5–2.9	4,616	4,905	5,101	5,021	4,950	4,806
	16.2	16.3	16.6	16.0	16.1	15.6
2.0–2.4	4,918	5,146	5,348	5,354	5,361	5,087
	17.3	17.1	17.4	17.1	17.4	16.5
1.5–1.9	2,855	2,963	3,058	3,307	3,211	3,115
	10.0	9.8	9.9	10.6	10.5	10.1
0.0–1.4	1,643	1,623	1,704	1,781	1,741	1,779
	5.8	5.4	5.5	5.7	5.7	5.8
Not rated	3,561	4,080	4,226	4,562	4,705	4,875
	12.5	13.6	13.7	14.6	15.3	15.8
TOTAL	28,486	30,099	30,765	31,296	30,726	30,783

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.
SOURCE: Data from NSF Graduate Student Support Surveys.

TABLE 13 Graduate Students Whose Primary Source of Financial Support was Self, Loans, or Family, by Quality Category and Year (1201 departments, 14 disciplines)

Roose–Andersen Rating	Self-Supported Enrollment, by Fiscal Year*					
	1968	1969	1970	1971	1972	1973
4.0–5.0	1,488	1,682	1,671	1,811	2,674	2.814
	12.8	12.7	11.1	12.0	15.8	16.6
3.0–3.9	2,945	2,971	3,358	3,050	3,288	3,470
	25.3	22.5	22.3	20.2	19.4	20.4
2.5–2.9	1,663	1,855	2,337	2,403	2,724	2,615
	14.3	14.0	15.6	15.9	16.1	15.4
2.0–2.4	1,843	2,163	2,652	2,549	2,821	2,731
	15.8	16.4	17.6	16.9	16.7	16.1
1.5–1.9	1,566	1,469	1,842	2,062	2,221	2,126
	13.4	11.1	12.3	13.7	13.1	12.5
0.0–1.4	667	1,049	1,060	963	978	774
	5.7	7.9	7.1	6.4	5.8	4.6
Not rated	1,473	2,027	2,108	2,240	2,216	2,448
	12.6	15.3	14.0	14.9	13.1	14.4
TOTAL	11,645	13,216	15,028	15,078	16,922	16,978

* *Number of students* is the first figure given, followed by *vertical percentage*, i.e., the proportion of students enrolled in that quality grouping in that year.
SOURCE: Data from NSF Graduate Student Support Surveys.